

REMARKS

The rejections of Claims 6, 8, 15, 17, 18, 22 and 34 under 35 U.S.C. § 102(e) as anticipated by, and of Claims 18, 22 and 34 under 35 U.S.C. § 103(a) as obvious over, U.S. 6,184,327 (Weng et al), are respectfully traversed.

The present invention relates to olefin branched macromonomers, olefin graft copolymers, and olefin resin compositions having the advantages of good compatibility with polyolefin resins and good moldability and workability.

As recited in above amended Claim 6, an elected invention is an olefin graft copolymer obtained by copolymerizing an olefin branched macromonomer which satisfies the following (a) and (b):

(a) its weight-average molecular weight ( $M_w$ ) measured through gel permeation chromatography (GPC) falls between 400 and 200000;

(b) its vinyl content is at least 70 mol% of all the unsaturated groups in the macromonomer, wherein the macromonomer satisfies any of the following (i), (ii) and (iii):

(i) the ratio of the temperature dependency ( $E_2$ ) of the macromonomer solution viscosity to the temperature dependency ( $E_1$ ) of the solution viscosity of the linear polymer which has the same type of monomer, the same chemical composition and the same intrinsic viscosity as those of the macromonomer,  $E_2/E_1$ , satisfies the following relationship:

$$1.01 \leq E_2/E_1 \leq 2.5;$$

(ii) the ratio of the number-average molecular weight measured through GPC (GPC-Mn) to the number-average molecular weight measured through  $^{13}\text{C}$ -NMR (NMR-Mn) of the macromonomer satisfies the following relationship:

$$(\text{GPC-Mn})/(\text{NMR-Mn}) \geq 1;$$

(iii) the macromonomer has branches existing not at the  $\alpha$ - and/or  $\beta$ -substituents of the monomer that constitutes the macromonomer, and the number of the branches falls between 0.01 and 40 in one molecule of the macromonomer,

with at least one comonomer selected from ethylene, propylene,  $\alpha$ -olefins having from 4 to 20 carbon atoms, cyclic olefins and styrenes, in the presence of a metallocene catalyst.

As recited in above-amended Claim 15, an elected invention is also an olefin graft copolymer obtained by copolymerizing a propylene macromonomer satisfying the following (a), (b) and (c):

(a) its weight-average molecular weight ( $M_w$ ) measured through gel permeation chromatography (GPC) falls between 800 and 500000;

(b) its vinyl content is at least 70 mol% of all the unsaturated groups in the macromonomer;

(c) its propylene content falls between 50 and 100 mol%,  
with at least one comonomer selected from ethylene, propylene,  $\alpha$ -olefins having from 4 to 20 carbon atoms, cyclic olefins and styrenes, in the presence of a metallocene catalyst,  
which olefin graft copolymer satisfies the following (1), (2), (3) and (4):

(1) its intrinsic viscosity  $[\eta]$  measured in a solvent decalin at 135°C falls between 0.7 and 12 dl/g;

(2) the ratio of the weight-average molecular weight ( $M_w$ ) to the number-average molecular weight ( $M_n$ ) thereof measured through GPC,  $M_w/M_n$ , falls between 1.5 and 3.0;

(3) it contains from 0.01 to 40% by weight of repeat units derived from the propylene macromonomer;

(4) it has no terminal vinyl group in the olefin graft copolymer.

Weng et al discloses elastomeric propylene polymers disclosed as combining amorphous, atactic polypropylene backbones with high melting point, low molecular weight,

isotactic or syndiotactic polypropylene sidechains (column 2, lines 32-36). However, Weng et al neither discloses nor suggests any of the following (i), (ii) and (iii) of Claim 6. Nor does Weng et al disclose or suggest requirements (2) or (4) of Claim 15. Indeed, as Table 2 in Weng et al indicates, the MWD are all above the presently-recited maximum of 3.0 of said requirement (2) of Claim 15.

For all the above reasons, it is respectfully requested that the rejections over Weng et al be withdrawn.

The rejection of Claims 8, 17 and 22 under 35 U.S.C. § 112, second paragraph, is respectfully traversed. Indeed, the rejection is now moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that it be withdrawn.

Applicants respectfully call the Examiner's attention to the Information Disclosure Statements (IDSs) filed November 15, 2002 and January 4, 2002. The Examiner is respectfully requested to initial the Forms PTO 1449 submitted therewith, and include a copy thereof with the next Office communication. For the Examiner's convenience, copies of these forms are **submitted herewith**.

Moreover, since the date of the IDSs is before the date of the Office Action and thus technically were part of the Official file as of the Office Action date, Applicants respectfully request that should the Examiner determine that a new ground of rejection needs to be made in the next Office Action relying in whole or in part on any of the references cited in the IDSs, then said next Office Action not be made Final, even if the new rejection was necessitated by the present amendment to the claims.

All of the presently pending and active claims in this application are now in immediate condition for allowance. The Examiner is respectfully requested to examine claims to the non-elected species, and in the absence of further grounds of rejection, pass this

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application to issue with all such claims, as well as claims drawn to Group III of the  
restriction requirement, which claims contain the limitations of the allowed active claims.

Respectfully submitted,

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